

Claims

[c1] 1. An impeller for a centrifugal pump having an operational direction of impeller rotation in a pump housing, said impeller comprising:
a substantially circular-disk-shaped carrier having a plurality of elongate blades on a disk plane surface thereof, each of said blades extending away from said disk plane surface and being longitudinally curved between an inner radial end and an outer radial end; and
at least one blade of said impeller extends with a first curved portion oriented concavely toward the direction of impeller rotation and a second curved portion oriented convexly toward the direction of impeller rotation.

[c2] 2. The impeller as recited in claim 1, further comprising:
said first curved portion of said at least one blade extending from said inner radial end to said second curved portion, and said second curved portion extending from the first curved portion outwardly toward said outer radial end.

[c3] 3. The impeller as recited in claim 2, further comprising:
said outer radial end being located at an outer peripheral circumference of said carrier.

- [c4] 4. The impeller as recited in claim 2, further comprising:
said first curved portion being shorter than the second
curved portion.
- [c5] 5. The impeller as recited in claim 2, further comprising:
a length of said first curved portion being between ten
and forty percent of a total length of said at least one
blade.
- [c6] 6. The impeller as recited in claim 2, further comprising:
said at least one blade being, along at least part of a
length thereof, angularly inclined away from said disk
plane surface of the carrier at an angle that is less than
90 degrees measured at that side of said blade facing
the operational direction of impeller rotation.
- [c7] 7. The impeller as recited in claim 2, further comprising:
said at least one blade being, along at least part of a
length thereof, angularly inclined away from said disk
plane surface of the carrier at an angle that is between
approximately 45 and approximately 87 degrees mea-
sured at that side of said blade facing the operational di-
rection of impeller rotation.
- [c8] 8. The impeller as recited in claim 2, further comprising:
an edge of said at least one blade that is opposite an
edge that is connected to the carrier has an oblique

bevel with a tip directed toward the operational direction of impeller rotation.

[c9] 9. The impeller as recited in claim 8, further comprising: said oblique bevel has an angle relative to said disk plane surface of said carrier between approximately 3 degrees and approximately 30 degrees.

[c10] 10. A centrifugal pump comprising:
an impeller having an operational direction of impeller rotation in a pump housing;
said impeller comprising a substantially circular-disk-shaped carrier having a plurality of elongate blades on a disk plane surface thereof, each of said blades extending away from said disk plane surface and being longitudinally curved between an inner radial end and an outer radial end;
said impeller further comprising at least one blade of said impeller extends with a first curved portion oriented concavely toward the direction of impeller rotation and a second curved portion oriented convexly toward the direction of impeller rotation; and
said impeller being arranged to rotate in said pump housing with said plurality of blades interacting with a pump housing wall which is parallel and close to said disk plane surface of said carrier.

[c11] 11. A centrifugal pump comprising:

an impeller having an operational direction of impeller rotation in a pump housing;

said impeller comprising a substantially circular-disk-shaped carrier having a plurality of elongate blades on a disk plane surface thereof, each of said blades extending away from said disk plane surface and being longitudinally curved between an inner radial end and an outer radial end;

said impeller further comprising at least one blade of said impeller extends with a first curved portion oriented concavely toward the direction of impeller rotation and a second curved portion oriented convexly toward the direction of impeller rotation; and

said impeller further comprising a disk oriented parallel to said disk plane surface of said carrier and connected to said plurality of blades, said disk having a central inflow opening for introducing media to be pumped by said centrifugal pump.